

# JACG 7ACE

NEWSLETTER  
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THE JERSEY ATARI COMPUTER GROUP

## From the Editor's Desk...

All of us in the J.A.C.G. have seen Art Leyenberger pour his heart, soul, and waking hours into the development of what we know is the best user's group newsletter in the country. We have the ears of the top brass at Atari and know that they pay no small attention to what we say in our publication. And we have plenty to say. During an August visit to Silicon Valley I was always identified with "that great newsletter from New Jersey." Attending the San Francisco A.B.A.C.U.S. User's Group two people requested subscription information and followed up on it with checks. In short, I have inherited what I think is an awesome responsibility and a golden opportunity to influence the thinking and learning of the Atari community at large.

Least that should sound egotistical I assure you that goal will only be reached if each of us will make the Newsletter our personal sounding board by being at least an occasional, if not regular, contributor. The Newsletter has properly become a reflection of the needs of our group with columns covering almost every conceivable topic. This healthy situation will continue only with people like you coming forth and sharing with us your knowledge. A degree in journalism isn't needed, just a sincere desire to let others know some of the many things you know about the wonders of this machine most of us have developed a near-love affair with.

I look forward to an exciting journey with you. I will promise to listen and respond. I will come to many of you and ask for help. I thank you in advance for help and patience. And I will hope to maintain the high standards of quality established by my predecessor. Good luck, Art, with your Outpost Atari. We know that great things are in store for your readers.

Frank Pazel  
Editor-in-Chief, JACG Newsletter

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## MARK YOUR CALENDARS!!

### JACG Meeting Schedule

- December 17, 1983 (---NOTE CHANGE)
- January 14, 1984
- February 11, 1984
- March 10, 1984
- April 14, 1984
- May 12, 1984
- June 9, 1984



AND NOW A WORD FROM THE PRESIDENT....

If you plotted our membership over the last two years, you'd see a rapid increase throughout the year, a large drop at membership renewal time and a rapid increase after that time. I've always wondered why the membership drops so much at each annual renewal. Although our total numbers have grown rapidly, I am concerned about how many members drop out each year and why. Is it a decision to put the computer up there in the attic next to the video game and the combination shredder/grater/slicer or other doodad? Is it because JACG is not meeting some need that they have? Is it because they are moving "up" to an IBM or Kaypro or Cray computer? If anyone has any thoughts on this, please let me know. As I said, I'm curious.

There's a new Atari magazine- Hi-Res. I haven't seen a full issue yet, but their flyer seems to indicate that the magazine will stake out the area of less technical stuff, with lots of art.

I got delivery of an item called a Stick Station, a solid piece of wood with a place cut out to attach a joystick. The idea is to give a firm base on which to mount the joystick. The wood is nice, but I think that rubber feet in each corner would have improved the product.

The TARICON Atari convention, scheduled for late October in Michigan, was cancelled due to less than enthusiastic support from the Michigan group's members and from the software and hardware community that makes products for the Atari.

The Atari Service Facility in Somerset has laid off a large number of employees. Atari certainly seems to be showing signs of trying to save the patient by cutting off all his limbs in order to save the heart. Quite short term of them, I think. Also, Atari products are not exactly flooding the market to meet the rising tide of consumer interest in personal computers. Here is a purely hypothetical, but word-for-word accurate scene taking place in stores across the country:

Interested Consumer: Would you please show me that computer that Alan Alda has been talking about on television? The Atari SL or something like that?

Store Clerk: Oh, you mean the Atari XL line of computers. I'm sorry, but they are not out yet and rumor has it that the 1400 and 1450 XL's never will be. We do expect to get the 600 XL in our store sometime before the end of next year.

Interested Consumer: Isn't it a bit strange to have such a high priced spokesperson as Alan Alda pushing a product that I can't even get?

Store Clerk: It sure is! But Atari has a contract with him and the meter is running. Perhaps I can interest you in the Commodore 64. We have lots of them,

enough so that even though the first three or four you take home won't work, we can eventually find one that will.

Interested Consumer: I guess I better take one of those. My kids are telling me that unless we get a computer they'll be the laughing stock of the neighborhood. I sure did want to see that Atari, though. Well, at least I can see Alan Alda on reruns of M\*A\*S\*H.

The moral of the story: It's hard to sell ice to Eskimos. It's even harder when all you have is a picture of the ice.

Richard Kushner  
President, JACG

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## FLEA MARKET RULES

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In order to clarify the intention of the Executive Committee in sanctioning the use of the BTL lobby before and after monthly meetings for use as a member flea market we publish the following rules:

1. All flea market sellers must be current JACG members.

2. Space is provided on a first-come, first-served basis.

3. Only ORIGINAL programs with ORIGINAL documentation may be sold in the area of software.

4. Hardware of any type may be sold normally without constraint. The Executive Committee reserves the right, however, to limit the physical size and space consumed by such hardware.

5. Flea market business will be conducted only in the lobby and ONLY when the meeting is not in session in the auditorium.

6. The Executive Committee reserves the right to deny or suspend the privilege of flea market usage to any person, member or not, for infraction of these operating rules.



## The Report Card by Frank Pazel

Teaching youngsters how to use money is easy. Television has taken them down that path already. Teaching them to make correct change in order to pay for something is another story. Ask any elementary teacher about the formidable job it can become. A nice little program from the prolific PDI (Program Design, Inc.) provides anyone faced with this task the means to help little heads better understand the mechanisms of currency exchange.

The Cash Register is exactly that and looks and acts quite a bit like an old fashioned hand-cranked model some of us remember residing on old Mr. Boynton's general store counter when we went in to buy a quarter pound of loose Uneeda cookies after school. It's kind of fun and does a pretty decent job of teaching change-making too.

Once the almost tedious PDI opening screen is gone you decide to go directly to the cash register or get instructions. Electing for instructions brings you a surprise, especially if you have the disk version. Instructions are presented via computer-synched cassette tape (packed in the same package as the disk) with appropriate examples and sound. Although a clever idea I found it cumbersome and irksome to use. I can not fault its thoroughness, however. I guess I'm just gun-shy when it comes to using the 410 anymore. Teachers who have used this intro actually seem to like it so I leave that criticism up to you.

Going directly to the cash register program brings the "We're In The Money" tune and simple, but effective graphics depicting the old cash box. Large keys on the register represent pennies, nickels, dimes, quarters, half dollars, and dollars. A problem, in the form of a transaction, appears at the bottom of the screen. "I bought a pack of gum for 37 cents and gave you 1 dollar. What is my change?"

The penny key begins to flash and you must decide how many pennies are needed to work toward equity. Use the number keys to indicate 3 (in this case) and now the nickel key flashes. Any time you want to bypass a key simply press any computer key until you have responded to all six cash register keys. The big old crank on the side begins to turn, the internal speaker grinds along with it, and you are rewarded with the opening tune, if correct, or a discrepancy in cash message if wrong.

If you are wrong you don't have the opportunity to rework that problem. If you make the wrong change with a certain key you can't back up and change it. These seemed to be major structural omissions I thought would discourage users but teachers and kids I watched use the program didn't seem to mind at all. A classic case of my perhaps wanting to over engineer everything (maybe).

The program is written in BASIC, runs just fine and can be controlled with a joystick or the keyboard. When you want to end the session you type in an S and you get a cumulative report on how you did. The computer reports on how many people you did business with correctly, how many you overcharged, and how many you undercharged. Although not an award winner for structure or graphics it gets the job done and I give it a B in my grade book. The Cash Register is available from Program Design, Incorporated, 11 Idar Court, Greenwich, Connecticut 06830 and lists for \$24.95.

## APX Award for JACG Member

Ed Churnside, a JACG member, has just been awarded First Prize in the Home Entertainment category for the fourth quarter in the Atari APX competition. The winning entry is an adventure called "Dragon Quest, or a Twist in the Tail." The program was developed in the BASIC and Assembly languages. "Dragon Quest" will be included in the APX Winter catalog and should be appearing in stores by Christmas. Congratulations, Ed!!



REWARD!!!

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### FREE LIBRARY DISKS FOR GETTING ADS!!!

You can get free disks from our nationally famous and immensely growing JACG Disk Library by simply convincing any retailer, vendor, manufacturer, or whomever, to place an ad in the JACG Newsletter. For every quarter page ad you recruit from someone who has either never advertised in the Newsletter or has not advertised in the last 12 months you will get your choice of one free library disk. Half page ads bring you two disks and full page ads bring you four disks. How can you beat that deal?

Advertising rates are \$15/quarter page, \$25/half page, and \$40/full page. Your customer's ad reaches a targeted audience of enthusiastic Atari users of over 500 plus computer store and courtesy mailings bringing the total up to well over 700 per issue. Placement of ads in the Newsletter is the exclusive decision of the Editor but every consideration will be given advertiser requests. Space is available on a first-come, first-served, space-available basis. Contact Advertising Manager Herb Lehner at (201) 725-9394 for further information or any JACG officer listed on the back page of the Newsletter.

Get out there, talk up the efficacy of advertising in the official JACG publication, drum up some business which will bring down the cost of printing, and earn yourself some free disks. This offer is limited to current JACG members and each new advertiser, regardless of repeat business with larger or smaller ads, can be used only once. Members of the Commodore, Apple, and IBM-PC Boards of Directors must apply for special dispensation to qualify for this offer.



## The Technical Corner

by Ernie Rice

Welcome once again to the technical corner of the JACG Newsletter. In this issue I am going to provide you with a quick and dirty little BASIC program to read any sector on disk. This routine will allow the user to investigate on his own the nature of the structure of a diskette formatted by Atari's DOS 2.0S.

The BASIC program implements the 'USR' statement that was discussed last month. As you recall, the 'USR' statement is used whenever it is necessary to use assembler code in a BASIC program. The program which follows is pretty straight forward, with remark statements to help understand what is going on.

The second listing is the assembler source that is being invoked via the 'USR' statement. Novice users may find this listing very cryptic. Don't despair, an explanation of that routine will be forthcoming.

The BASIC program actually just prompts the user for a sector number and then transfers control to an assembler routine which reads the sector and places the information into a string called `buffer$` (which we initialized to all spaces). The `buffer$` variable is very important to the program and it must be handled very carefully. This variable is in BASIC's domain. He is responsible for it's well-being. Basic keeps track of all variables and their size. We will be modifying the contents of the variable `buffer$` in our assembler routine. Pretty tricky business. Modifying the length of `buffer$` is also tricky (and dangerous). Since we want to keep this as simple as possible we will make `buffer$` the proper size for one sector's worth of data (128 bytes) before we call the assembler routine.

Initializing a string variable may be accomplished in many ways. First a user may use the standard assignment statement `buffer$=' 128 spaces'`. This is rather tedious (I have trouble counting above 10) as one must keep accurate count of the length. Another method would be a simple do loop which adds a space to the end of the string, checks its length and if the length is less than 128 goes back to add another space --- too slow. The preferred approach is to use a neat facility built in to basic. This allows for quick initialization of a string variable to any repeated value (I.E. spaces in this case). This procedure is listed below.

```
10 DIM buffer$(128):REM dimension string to its
desired length
20 Buffer$=" ":REM set first byte to a space
30 Buffer$(128)=" ":REM set last byte to a space
40 Buffer$(2)=Buffer$:REM this does the magic ---
Buffer$ = 128 spaces
```

The reason this works is the way in which BASIC does the assignment of a value to a character string. The process is a Byte-By-Byte Process which propagates the value throughout the string variable.

Once we have initialized the variable `buffer$` to all spaces we are ready to transfer control to the assembler routine. This is done with the `USR` statement on Line 130, the assembler routine is passed the location in the Atari's memory of variable `buffer$` (`ADR(Buffer$)`), and the number of the sector we wish to have read. The routine passes back either a '1' in variable `RSTAT` (if all went well), or an error number (if an error was encountered in the read operation). If a one is returned we print out the value of `buffer$`. Otherwise we print the appropriate error message and end.

Be careful in typing in the data statements. If they are not correct the program will not run properly.

Once you have the program running look at sectors 361-368 inclusive. These contain information that you may find very interesting. Other sectors of interest are 360, and 720. The story behind sector 720 is an interesting one. It is the sector that DOS won't use but the disk drive can write. Confused? Well, the Atari 810 disk drive was originally designed to handle 720 sectors of information. The hardware designers numbered the sectors from 1-720 inclusive. The software engineers of DOS 2.0S numbered them from 0-719 inclusive. The result is that only those sectors available to both ranges are valid under DOS 2.0S. I.E. sectors 1-719 are valid. This affords us some great potential. Sector 720 will never be written over by DOS 2.0S (except during a format of a diskette). This is a good candidate for 'secret' data. Software designers use this sector often in an effort to 'hide' counters passwords and other sensitive information. But now you can look at this sector with the sector reading program.

Enough is enough. Look at those diskettes and next month I will provide you with some more info on diskettes. I will tell you how and where the directory is along with the VTOC and BOOT sectors.

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Summit, New Jersey  
(201) 277-6785

Please do not hesitate to call me with suggestions for further articles or just questions on the Atari. And remember 'The only stupid question is the one you don't ask'. Until next month...

```
*****
***** This is listing #1 *****
10 REM BELOW-DIM VARIABLES, OPEN EDITOR, SET TRAP
20 CLR: RESTORE: DIM CODE$(75),BUFFER$(128):OPEN
#1,4,0,"E":TRAP 140
30 REM BELOW- READ DATA AND BUILD ASSEMBLER
PROGRAM IN VARIABLE CODE$
40 FOR A=1 TO 75:READ
X:CODE$(A,A)=CHR$(X):SUM=SUM+X:NEXT A
50 REM BELOW-PERFORM CHECKSUM TEST OF ASSEMBLER
PROGRAM
60 IF SUM<>7225 THEN ? ">>>>ERROR:DATA IS
INCORRECT":STOP
70 DATA
24,104,10
twq907~8<>fhdgsaLJ:K\^OPU
L-!VCBXZ$#&
```



Getting down to **BASICs**  
by Dick Kushner-JACG

Latest report on Basic Atari BASIC, co-authored by yours truly, is for availability early in January 1984. So plan on saving just a few dollars of Christmas money for this book. So much for free plugs and on to this month's column.

YOU BOUGHT AN ATARI, HUH? NOW WHAT?

Having finished our first simple BASIC program, let's take a look at the screen editing commands available on your Atari. It is difficult to appreciate the editing capabilities of your Atari without having seen the poor editing of the Apple. A whole mini-industry has grown up around the Apple to improve the editing with "add-ons".

First off, with the Atari you have the cursor control keys. Use CTRL plus any of the keys with arrows on them (-,=,+,\*) to move the cursor around the screen. If you have a program line that you want to change, simply move the cursor to the line, make the change and press RETURN. You don't need to move the cursor to the end of the line to have the computer accept the entire line! This is extremely useful and makes editing a real breeze. Type in the following line and then use the editing capabilities to fix the spelling mistakes. Then LIST the line to see the result.

```
10 PRINT "Sume peeple kant spel"
```

This is only the start of the editing features. You can also insert and delete lines or letters at will. Program lines are deleted by moving the cursor to an area of the screen with no writing, typing in the line number to be deleted and then pressing return. Presto, the line is gone. Lines are added to a program by simply typing the new line number and its commands and pressing RETURN. BASIC will see that the lines are put in numeric order. You don't need to place the new line where it will go in the program, just give it the correct number. To insert a character in an existing line, move the cursor to the correct spot and use CTRL + INSERT to open up a space. Similarly, to remove a character, use CTRL + DELETE/BACK S to remove the character to the right of the cursor. Use these features to fix the following line:

```
10 PRINT "Butt sum kan spel reel welll"
```

Work with these editing features when programming and they will soon become second nature to you.

THERE'S MORE TO BASIC THAN THE BASICs

One comment on our program from last month that drew a "2001" monolith and stars using GRAPHICS 9. It might have been nicer to draw the stars using different brightnesses for a more interesting background. Give it a try. (Hint: Remember that the brightness in GR. 9 is controlled by the COLOR command.)

Now let's go on and have a look at GRAPHICS 11. As we mentioned two months ago, GR. 11 is the inverse of GR. 9. You can have 16 colors and one brightness with GR. 11. The brightness is selected with SETCOLOR 4,0,B

where B is the brightness (0-15). If you don't specify a value for B, a value of 6 will be assumed. You then select a color with

COLOR N

where N can be 0-15. All sixteen colors can be on the screen at the same time, with one brightness. Changing this brightness will change the brightness of all the colors.

What can we do with all this color?

I'll present a program here that uses GR. 11 to draw multicolored "stars" at random locations on the screen and then cycles through the brightnesses to give a pulsating effect. Look at how it is done and we'll take it apart in the next installment.

Remember - I'm open to any suggestions on where this column should be heading (except the waste basket). Also, I'll act as a collection point for any programs that you have that might be good illustrations of the concepts that we are covering. When I get good ones, I'll see that they get included in this newsletter.

```
90 REM GR. 11 MULTICOLORED STARS
100 GRAPHICS 11:SETCOLOR 4,0,4
110 FOR I=1 TO 75
120 Y=INT(RND(0)*183)+4
130 X=INT(RND(0)*73)+3
135 COL=INT(RND(0)*15)+1
140 COLOR COL:IF COL>15 THEN COL=1
150 PLOT X,Y
155 COL=INT(RND(0)*15)+1
158 COLOR COL
160 PLOT X-1,Y-1:PLOT X-1,Y+1
165 PLOT X+1,Y-1:PLOT X+1,Y+1
170 COL=INT(RND(0)*15)+1
172 COLOR COL
175 PLOT X-2,Y:PLOT X+2,Y
180 PLOT X,Y+2:PLOT X,Y-2
182 COL=INT(RND(0)*15)+1
183 COLOR COL
185 PLOT X-3,Y:PLOT X+3,Y
187 PLOT X,Y+3:PLOT X,Y-3
189 PLOT X,Y+4:PLOT X,Y-4
190 NEXT I
192 FOR DELAY=1 TO 1000:NEXT DELAY
195 FOR I=0 TO 12
200 SETCOLOR 4,0,I
210 FOR DELAY=1 TO 3:NEXT DELAY
220 NEXT I
230 FOR I=12 TO 0 STEP -1
240 SETCOLOR 4,0,I
250 FOR DELAY=1 TO 3:NEXT DELAY
260 NEXT I
270 GOTO 195
```





## TIDBITS

News and Views By  
Arthur Leyenberger - JACG

Look Out Adam, it's Eve

The Coleco Adam has been getting a lot of press for the past several months. First they could meet their original deadline, then they couldn't, then they changed the deadline. I've grown tired of trying to keep up with the Adam saga and apparently I am not alone. An enterprising retailer in Cedar Knolls, New Jersey, is selling an Atari system package system he has dubbed "Eve". For under \$600, Gemini Enterprises will sell you an Atari 600XL computer, Atari 1027 letter quality printer, Atari 1010 cassette recorder and the Atariwriter word processor. The official version of a similar system packaged by Atari called the "Writer" does not include the cassette recorder.

This is a nice package. Not only is the price good, the Atariwriter is, in my opinion, the best word processor for the Atari. When using the Atariwriter with the 16K 600XL, the user still has about 10K of memory available which is the equivalent of about 20 double-spaced typed pages.

The 1027 printer has a very good quality output for an inexpensive printer. While the speed of the printer is almost an order of magnitude slower than the fastest dot-matrix printer, it will still probably fit the needs of the first time user or someone who is not sure if they want to do a lot of word processing. My only criticism of the 1027 printer is its lack of pin-feed paper capability. It is friction only.

### Atari XL Compatability

There has been much talk about the new Atari XL computers. Rumors have been more prevalent than fact. One of the major points of concern (mentioned in past Newsletters) has been the compatability question.

Will the new machines have the 400/800 Operating System or will they have the less than popular 1200XL Operating System? All existing software can run on the former and much of the third party software cannot run on the latter.

The facts are in and there is some good news and bad news from Atari. The bad news is that the XL computers have the 1200XL Operating System and therefore a lot of software will not run on them. The good news is that there will be a "Translator disk" (and a Translator cassette) from Atari that will modify the Operating System in the XL machines to look like the 400/800 OS. There currently is no indication of when the Translator program will become available or how much it will cost. I have been calling Atari's toll free hotline for over a week and have given up due to continual busy or no answer responses.

### Player Missile Graphics Made Easy

Most Atari computer owners are aware that they have the best game-playing computer on the market. It is also no secret that one of the reasons for this is Atari's unique player-missile graphics system. Unfortunately, learning how to use player/missile graphics is a difficult and time-consuming task. At least it has been until now.

From Don't Ask Software (the folks who brought you S.A.M. - the Software Automated Mouth) comes a new product called *The PM Animator*. The PM Animator is a set of software tools that allows you to easily create and then incorporate player/missile graphics routines into your BASIC programs. Although no programming experience is required to use this system, some familiarity with BASIC will help.

There are two editors in the PM Animator system. The Grafix Editor allows you to create the images that you want to incorporate into your BASIC programs. Up to 16 images can be created and stored in one file. These images are a series graphics frames, each one slightly different from the previous one. When viewed sequentially, they appear to be animated much like the individual frames of a movie.

It is really quite easy to edit the graphics images. The player is created pixel by pixel within an exploded view window. Also provided are three other windows of normal size. Typically, the previous, current and next images in sequence are displayed in order to better work on the current image.

The File editor allows you to customize the sequencing of the files created with the Grafix Editor. In addition to being able to view and manipulate multicolor player sequences, you can also edit, append and copy various parts of your files in order to create the animation sequence you desire. The File Editor is in the form of a 5 by 10 cell spreadsheet that may contain up to fifty separate frames.

Once you have created the animation frames and sequences, there are machine language subroutines for incorporating the graphics into your BASIC program. These routines are called by simple USR statements and allow you to load ASCII data quickly, clear areas of memory and move players horizontally and vertically.

The documentation consists of a 79-page owner's manual and tutorial. The first six chapters are devoted to teaching the fundamentals of PM graphics to anyone, even those who are novices at programming. The next five chapters deal with the various features of this powerful graphics development tool. Finally, the last four chapters cover such advanced animation techniques as creating motion multiple players and multicolored players.

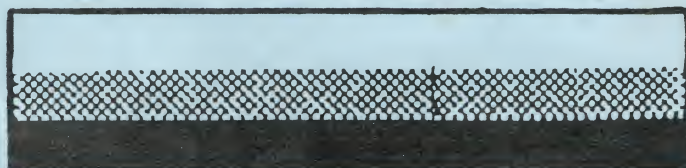
*The PM Animator* is an excellent tool for creating Player-Missile Graphics images. It is not a game but rather a utility that will greatly aid the serious programmer with the task of creating and animating graphics sequences.



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## Art's Arcade

By Arthur Leyenberger - JACS

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Welcome back to Art's Arcade. I hope you have been enjoying this column the last couple of months. I try to tell it like it is here so hang on. This month I will be looking at a pair of games from Synapse - Necromancer and Blue Max - and a game from Adventure International - Triad. So let's get started.

\* \* \* \* \*

### Necromancer by Synapse

This old gamester has played a lot of games on the Atari computer and Necromancer is one of the strangest and most imaginative I have ever seen. Very few match the originality and playability of this combination of fantasy and action.

The game begins with darkness upon the land. You are Illuminar, a druid, defender of truth and protector of the human race, who must face the evil Necromancer.

In the first act of this fantasy, you must restore the forests by planting a glade of enchanted trees and protecting them from hordes of attacking ogres who like to stomp on the young trees. So as the trees are growing you must defend existing trees while at the same time planting new seedlings. This is all done with your joystick-controlled wisp. Full grown trees are safe from the attacking Troglodytes but are prey to the forest spider.

The spider will poison any adult tree that he finds. When this happens, a face is seen on the tree and it begins screaming for help. You must then touch the tree with your wisp before it dies and becomes a useless stump. Your goal is to grow as many trees as you can since they will aid you in attacking the evil Necromancer himself.

At the end of a act one, you and your trees are transported to the spider vaults. In this act your mission is to destroy as many spider larvae as you can before descending to meet the Necromancer. As bizarre music plays, your wisp is used to pick up a tree from the tree bin and walk it to the top of a spider vault. Once the tree is placed there, its roots begin growing which eventually break up the bricks, causing the tree to come crashing down on top of the spider larvae. After the larvae is destroyed, the tree is returned to your bin to be used again. The tree bin contains your arsenal of trees that were grown in act one.

As you move your druid and trees about the vaults, you must avoid the Hands of Fate that descend from the ceiling. If they grab you, you will be pulled screaming into the sky. If they grab one of your trees, you've lost

that tree for good. The hands occasionally drop mystery prizes which are indicated by a question mark and are claimed by walking over one with your druid. The first mystery prize will lower some ladders to let you get down to the level below. Additional mystery prizes may raise ladders, give you bonus points or deplete your strength.

When you exit the fifth level of the vaults you get a bonus for every tree you have left in your tree bin. You also begin act three and get a chance to meet the Necromancer.

Act three is the Necromancer's lair. Your mission is simple: destroy all of the Necromancer's graves to rid the world forever of his tyranny. The gravestones are removed by walking over them with your druid. The evil one only appears on graves that still have their headstones. If he touches you, he will suck your strength until you kill him or escape. Killing the Necromancer with your wisp gives you strength but he will reincarnate himself.

The Necromancer hatches all of the spider larvae you have left behind in act two and turns them into zombie spiders. These spiders can also suck your strength away or be killed by you. You can never destroy all of the zombie spiders because the Necromancer continually reincarnates them.

If things were not bad enough, there is also a mother spider that looks for zombie spiders and mutates them into immortal spiders. Immortal spiders cannot be killed and your only choice is to run. When you have removed all 13 headstones, you get bonus points and advance to the next level. Once you grab the last headstone on level 5, you have succeeded in ridding the world of the evil Necromancer. The forest explodes in a rainbow of colors.

Bill Williams has created a game that has real staying power. Necromancer is well conceived and beautifully implemented. The sound and graphics are out of this world. This game has and will continue to get a lot of airplay on my Atari. Good job Synapse.

### Blue Max by Synapse

Move over, Zaxxon. A new, 3-D flying game from Synapse has taken your place in the lead. That's right, Blue Max is now the premiere first-person shoot-'em-up flying game.

It is World War I and you are flying a biplane fighter bomber. Your mission is to destroy three special targets within the city. The third being within the heavily defended capital city. You only have one aeroplane and your wits to accomplish your directive.

As the tune "Rule Britannia" is heard, you taxi down the runway and when reaching a speed of 100 mph, pull back on the throttle to take off. (Note: there are two joystick control options. Reverse simulates the control of a real airplane joystick, i.e.



## Art's Arcade...(cont'd)

forward is down, back is up. This is more realistic and the one I prefer.)

As you climb, you can see your shadow appear on the ground below. There are audible and visual warnings for every situation - enemy approaching (above or below), damage report, low fuel, wind factor, etc. You have at your command bombs and a machine gun used for dogfights. Enemy fire from ships, anti-aircraft and other planes are a constant menace.

There are plenty of targets to keep you occupied. Stationary targets such as buildings, tanks, bridges, cars and anti-aircraft emplacements all earn you various amount of points. There are also moving targets such as planes, ships and supply trucks. Certain of these targets are considered primary targets and they must be destroyed in order to gain entry to the next level.

As you progress through the mission, bombs are expended, fuel is depleted and damage may be sustained to your aircraft. You will eventually have to land at a friendly airfield in order to refuel, load bombs and repair damage. Visual signals indicate the approach of a friendly airstrip. Your landing gear is lowered by the press of the fire button and a quick descent and short landing will ensure that you have time and distance enough to take off once again to fight the axis powers.

*Blue Max* is a very good game. It certainly passes the multiple play or "just one more round" test. It took me a while to get used to the diagonal scrolling, but eventually I was flying with ease. The game is a lot of fun and I would like to pass on a hint mentioned in the manual: "Stay airborne, crashing shortens game play".

### *Triad* by Adventure International

It's about time somebody did something with TIC-TAC-TOE. I mean, this is the information age, isn't it. Now I am not asking for a mere computerized translation of this venerable classic. That would be about as much fun as writing autobiographical software reviews. I'd like to see something completely different.

Adventure International has done just that. They have taken TIC-TAC-TOE and combined it with a playable shoot-'em-up and the result is *Triad*. Like TTT, the object of the game is to win three squares in a row. Well, in this game, you have to earn those squares.

The game board displays nine different bugaboos (Hey, that's what they are really called). Each turn, you select a square, and a bugaboo, to do battle with. The bugaboos are randomly placed in each square at the beginning of the game and each 'boo requires unique skills and strategy to destroy.

There are Moths, faces, bats, saucers, death masks and killer bees, just to name a few. Some of the enemies fly horizontally, others vertically. Some require a hit head-on

while others require that you don't fire when you see the whites of their eyes.

*Triad* is a fun game to play. It is fairly easy at the lower levels, but at the higher levels presents more challenge. It can be played by one player individually, or two players alternating turns.

I'd like to mention two aspects of this game and compliment Adventure International on these points. First, the disk version of the game comes with an Atari version on one side and an Apple version on the other. This helps keep costs down and minimizes the inventory a retailer is required to keep. Secondly, a very fair backup policy is offered. A back up copy of the game may be purchased for only \$3.99 plus \$2.00 postage.

Should the original game disk crap out on you it will be replaced for free up to one year from purchase date and for only \$5.00 after that. Adventure International is to be congratulated for not only having produced an enjoyable game but especially for their sane pricing policy.

\* \* \* \* \*

That's all folks for this edition of Art's Arcade. I try to call them like I see them. Next month, being the December issue of the Newsletter, I will offer some recommendations (and brief descriptions) of games that would fit nicely under the 'ol Christmas Tree or in anybody's stocking.

Until then, may your scores be high.



MICKRO MOUSE??



# FORTH IS AN ENDLESS LOOP CALLED QUIT

by Donald Forbes - JACG

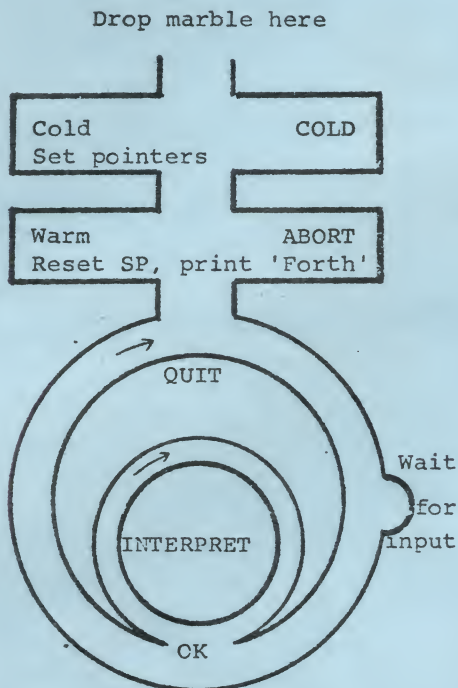
Here is the big picture of the Forth engine and what it does.

The secret of how Forth operates is revealed here for the first time. Note that you are reading this, not in BYTE, not in Forth Dimensions, not in Dr. Dobb's Journal, but in your own friendly and informative newsletter.

Nothing makes sense without the BIG picture. Washington DC makes no sense until you have peered from the Washington monument. The art of warfare makes no sense until you can trace the development and interplay of armor, firepower and mobility. Economics makes no sense until you realize that the national income, on the one hand, is production multiplied by prices and, on the other hand, the amount of money multiplied by the times it changes hands. Mathematics makes no sense until you have drawn three overlapping circles (an Euler diagram) each labelled geometry, algebra and calculus and can trace for all the resulting seven areas their mutual growth and interplay.

An auto engine makes no sense until you know what happens during a cold start, a warm start, the larger crankcase outer loop and the smaller camshaft inside loop.

The Forth engine also has two start phases (both cold and warm) and two loops. The outer loop is the secret of Forth--an endless loop called QUIT. Inside this loop is another loop called INTERPRET, and here is how they work together. Herein lies the whole secret of Forth.



The diagram should make everything clear. You can think of the engine as a pinball game, in which the marble drops through the cold start box, the warm start box, and then spins endlessly around the outer loop and the loop inside it.

The cold start is, appropriately enough, called COLD. It sets the pointers to the data (or parameter) stack, to the program (or return) stack, the top of the dictionary, and the input buffer for text from the terminal (TIB). If you type COLD from your terminal, you will see (because the dictionary pointer was reset) that all words you added since you booted the disk have now been erased. COLD then hands control to the warm start, which has the confusing name of ABORT.

The word ABORT resets the stack pointer and thus clears the data stack. (Try it for yourself.) ABORT prints the "FORTH" message and then invokes an endless loop called QUIT.

QUIT resets the pointer to the text from the terminal input buffer, and then just sits and waits and waits--looking for input from the terminal. If you merely hit RETURN, the imaginary marble spins around, flashes the OK at the terminal, points to the start of TIB and waits again. If QUIT finds input at the terminal then it turns control of the "marble" to INTERPRET long enough to handle the text, and then resumes its endless loop. Type QUIT and you will notice that Forth skips the OK and just sits there, waiting for more input.

INTERPRET does all the work. If you input a word, it executes it. If you create a new definition, it copies it into the dictionary. If you input a number, it puts it on the stack. And then it turns control back to QUIT.

And there you have the BIG picture of Forth!!

Do a DECOMP of these new words and you will see that Forth is indeed written in Forth. You can now read the FORTH ENCYCLOPEDIA for the details, because you know now just how the pieces fit together.

Later you will need to know what each Forth word looks like in memory. You should also realize that the Forth engine has a "distributor" called NEXT that drives five "spark plugs" or pointers that fire the program counter (PC), the current word pointer (W), the next word to interpret (IP), the data stack (SP), and the program stack (RP). These topics, however, belong in another article.

What does the big picture buy you? BASIC became a popular language when its friendly INPUT statement displaced FORTRAN's unfriendly FORMAT statement. The following Forth sequence will imitate BASIC's friendly input statement -- : INPUT? CR QUERY ?TERMINAL INTERPRET ; . Here INTERPRET in this short program accepts a pair of numbers, then adds them and prints them.

Now that the secret is out, you can end

Continued on Page 14.



## Forth...(cont'd)

the session in a blaze of glory with a program from Ekkehard Floegel's "Forth on the Atari."

The sky, appropriately enough, ignites as the fireworks take over.

```
Scr # 114
0 ( forth engine: friendly input)
1 0 VARIABLE A 0 VARIABLE B
2 : INPT? CR QUERY CR ?TERMINAL
3 INTERPRET ;
4 : ADDITION CLS CR
5 ." Gimme a number" INPT? A ! CR
6 ." Gimme another " INPT? B ! CR
7 ." Add em up!" A @ B @ CR + . ;
8
9
10
11
12
13
14
15
```

```
Scr # 112
0 ( floegel colordemo p 45)
1 : WAIT 0 DO LOOP ; : CF 712 C@
2 710 C@ 712 C! 709 C@ 710 C!
3 709 C! ; : CCF 100 0 DO CF
4 100 WAIT LOOP 0 GR. ; : BG 254
5 0 DO I 712 C! 500 WAIT 2 +LOOP
6 ; : FG 254 0 DO I 710 C! 500
7 WAIT 2 +LOOP ; : DI 16 0 DO I
8 709 C! 100 WAIT LOOP ; : AR 0
9 14 DO I 709 C! 100 WAIT -1
10 +LOOP ; : CURS 85 ! 84 C! ;
11 : CLR 125 EMIT ; : DIS CLR 10
12 5 CURS 222 710 C!
13 ." V I V A CHUCK MOORE ! !"
14 CR CR CR ." Please hit RETURN"
15 30000 WAIT DI KEY AR ; -->
```

```
*****
*****
***
*** ***** *** ***** ***
*** ***** ***** ***** ***
*** ** ** ** ** ** ***
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*** ** ** ** ***** ***** ***
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*** BULLETIN BOARD ***
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*** 201-549-7591 ***
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*****
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WANTED: 850 Interface Module and 810 Disk Drive. Contact Frank Pazel (201) 627-8845.



## Atari Programming Languages

by Richard Rospond - JACG

Since there has been an overwhelming number of articles on programming languages in the past few issues, let's take a break and do something a little different - DATABASES.

During the November and December meetings we will take a look at several database programs including FILEMANAGER +, DATA PERFECT, and a special look at DMSDB and its follow-up, DMS 3.0.

Briefly, a database system allows you to input records of a specified amount of fields, and then allows you to manipulate the data. The output could be to the screen, full or partial record to the printer, mailing labels, etc.

FILEFAX and FILEMANAGER + have been reviewed in this newsletter within the past year, so I will not cover these programs. DATA PERFECT is the most comprehensive, most professional system for the ATARI, BUT the manual is so difficult to read, that many people I have spoken to were not able to use it.

DMS 3.0 does a very nice job for \$25 (APX), and includes a 2 level SORT, subtotals and totals of numerics. Unlike the original, DMS 3.0 allows the files to reside on a separate, not the main, disk for larger storage capacity.

Best of all it is written in BASIC. The reason I say this is we are allowed to go into the program and modify it for our own use. While DMS and DMSDB do not have features of the other more expensive programs, the others are not able to be modified, not even for printer commands.

On DMSDB, we have a modification made by one of the club members to allow the printing of Mailing Labels. I added the ability to add numericals and special printer commands such as underline and double width for my PROWRITER. Files prepared on DMSDB can be run on DMS 3.0.

On the negative side, the SORT program will work for only 30K bytes, although the authors, Ron and Lynn Marcusse, have written a stand alone program that will do larger files. The SORT and I/O are also relatively slow, but I was able to do a mailing list of 50K on 2 separate disks with it and make it come out OK.

At the next two meetings we will cover these DB programs AND dBase II, the best seller\* from Ashton-Tate which I use at work on my PC. This will be the first of a monthly look at the best selling programs from non-ATARI suppliers. I covered my rationale for this at the last meeting, and the response confirmed my feelings that a large number of members use other, more powerful computers at work, school, etc. With the advent of the ATR, we can now run these more powerful programs on our ATARI, so a brief introduction to the biggest and best would be worthwhile.

Also in December- a review of the ATR, which several of our members have already purchased and are quite pleased with.

## Coming Next Month

\*\*\*\*\*

### Atari 800 Modifications:

RAM Write Protect

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Ken Roser takes you through a complete explanation of memory decoding in the 800, details the mechanism used by the computer to deactivate RAM when a cartridge is inserted, and shows you complete construction plans to build a true system reset switch.

### FORTHright Man-Machine Talk

Donald Forbes addresses the problem of communications between a human and computer and explains why FORTH is the only language to successfully close this gap.

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